

CLAIMS

What is claimed is:

1. A system for dispensing items comprises:

one or more dispensing stations; and

5 one or more conveyors for transporting containers to the one or more dispensing station, wherein each of the one or more dispensing stations comprise:

a dispenser;

one or more dispensing heads, wherein each of the one or more dispensing heads receives items from the dispenser and comprises:

10 a dispensing chute for directing a first plurality of the received items toward the dispenser, wherein at least one physical characteristic of each of the first plurality of the received items is within a predetermined range of physical characteristics; and

a diversion chute for directing a second plurality of the received items away from the dispenser;

15 a mechanism for spacing the containers to a predetermined pitch;

a transfer wheel for removing the containers from the first conveyor;

a star wheel for receiving the containers from the transfer wheel and for positioning each of the containers in alignment with a corresponding one of the one or more dispensing heads, whereby the corresponding one of the one or more dispensing heads delivers
20 the first plurality of the received items to the container; and

a turret for removing the containers from the star wheel.

2. The system of claim 1, wherein the dispenser comprises a rotary, vibratory dispenser comprising:

a feeder bowl for receiving a plurality of items to be dispensed;

25 a feeder bowl vibration device for vibrating the feeder bowl;

a feeder bowl rotation drive for rotating the feeder bowl;

one or more dispensing paths positioned around the feeder bowl, wherein each of the one or more dispensing heads receives items from at least one of the one or more dispensing paths; and

at least one dispensing path vibration device for vibrating each of the one or more dispensing paths proportionately to the at least one physical characteristic of each of the items.

3. The system of claim 2, wherein the feeder bowl vibration device vibrates the feeder bowl and the feeder bowl rotation drive rotates the feeder bowl, so that the feeder bowl supplies items uniformly to the one or more dispensing paths and wherein the at least one dispensing path vibration device vibrates the one or more dispensing paths, so that the one or more dispensing paths dispense the items singularly, wherein the feeder bowl rotation drive rotates the one or more dispensing paths.

4. The system of claim 2, further comprising one or more sensing units, wherein each of the one or more sensing units measures the at least one physical characteristic of at least a portion of the items dispensed from at least one of the one or more dispensing paths, wherein each of the one or more dispensing heads receives items from at least one of the one or more dispensing paths via at least one of the one or more sensing units, wherein the at least one physical characteristic of at least one of the second plurality of the received items is greater than or less than the predetermined range of physical characteristics.

5. The system of claim 4, wherein each of the dispensing heads further comprises at least one holding chamber, wherein the at least one holding chamber directs the first plurality of the received items to the dispensing chute, and directs each of the second plurality of the received items to the diversion chute.

6. The system of claim 4, further comprising means for releasing the second plurality of the received items from the one or more dispensing heads.

7. The system of claim 6, further comprising means for separating the second plurality of the received items released from the dispensing head, which have the at least one physical characteristic within the predetermined range of physical characteristics, from the second plurality of the received items released from the dispensing head, which have the at least one physical characteristic greater than or less than the predetermined range of physical characteristics.

8. The system of claim 7, further comprising means for delivering the second plurality of the received items released from the dispensing head, which have the at least one physical characteristic within the predetermined range of physical characteristics to the feeder bowl.

9. The system of claim 8, wherein the means for separating comprises at least one strainer.
10. The system of claim 8, wherein the means for delivering comprises a conveyer.